Patent Application of

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For

TITLE: TOOL AND NOTATION FOR CAPTURING AND COMMUNICATING ENTERPRISE AND TECHNOLOGY STRUCTURES, PROCESSES, STRATEGIES AND CONCEPTS

CROSS-REFERENCE TO RELATED APPLICATIONS   This application claims the benefit of PPA Serial Number 60/391,530 filed June 25, 2002.

FEDERALLY SPONSORED RESEARCH   Not Applicable

SEQUENCE LISTING OR PROGRAM   The object code for this invention is contained on the CD-R (and duplicate copy) in the envelope attached to the last page of this application.

BACKGROUND OF THE INVENTION - - FIELD OF INVENTION
This invention is a software tool and notation to be used by business planners, consultants, software architects, and others for wide application in business, industry, government, technology, and academia.

BACKGROUND OF THE INVENTION
[0001]   Communication is critical to the success of any enterprise, yet existing methods of communicating strategies, processes, concepts, and structures are cumbersome, verbose, and boring. These consist of text, organizational charts, spreadsheets, clip art, and various boxes with

arrows and lines. These methods are applied inconsistently within enterprises and certainly between them. In particular, business leaders complain of their inability to communicate with, and therefore manage, information technology (IT) personnel and projects. Frequently, the IT systems that are developed fail to meet the expectations of management and users.

[0002] Modeling techniques such as IDEFx, interaction diagrams, and UML have been applied to business modeling and enterprise architecture. While these approaches could be considered graphic and visual, they are certainly not systematic, uniform ways to communicate business concepts. They are not visual languages. The notation contained in this invention is a visual language that uses the tool to combine shape, icon, text, adornments, relationship graphical elements, and color to create true semantic, visual elements including nouns, verbs, and modifiers. The prior art does not constitute true visual language and does not have the function of the present invention.

[0003] The construction industry has a visual language that this tool and notation emulates. Architectural building plans visually depict objectives, structures, elements, and attributes using shapes, icons, adornments, relationships, and text. These are presented in various views and levels of detail to give owners sufficient information to quickly and accurately verify that the design is what they desire and to give builders sufficient information to build and manage the construction process. This approach can be considered the visual language for construction.

[0004] The tool and notation being described in this application provides a visual language and blueprints for all enterprises. It is used by managers, planners, consultants, and strategists to "design" their enterprises. IT professionals will also use the tool and notation to design technology. Significantly, both technical and business professionals will use the same tool and notation, bridging the communication gulf that now exists. Business and other non-technical people will be able to validate and manage technology plans and projects just as a homeowner can validate the blueprints for their new home, without having to understand the technical aspects of the building process. Likewise, IT professionals people will see where their plans fit into the plans of the overall enterprise because the technology plans are embedded in the larger set of plans for the entire enterprise.

[0005] It is estimated that up to 40% of all software development projects undertaken by Fortune 500 companies are cancelled completely before completion. Of those completed, only

23.6% are completed on time and within budget (The Standish Group). This state of affairs is commonly referred to as "The Software Crisis." It is not caused by technological challenges or risks but, rather, because of a failure to communicate effectively. IT professionals and non-technical professionals do not have a shared notation or shared blueprints, such as those found in the construction industry. The basic dictum, "Design it first, and then carefully build it," is frequently ignored because there are no unified building plans for all to see and understand. This tool and notation will enable the design of enterprise-wide plans or blueprints with the power of a true visual language. This is unlike existing code-level, development notations, like UML, that have graphical shapes representing specific elements in a methodology and have only text for the problem domain semantics. The difference between UML (and similar methods) and this invention is analogous to the difference between MS-DOS, with its simple text screens, and Microsoft Windows.

SUMMARY OF THE INVENTION

[0006]   This invention is a tool with a notation and document layout created for business and software architects. These "architects" are commonly referred to as planners, designers, strategists, consultants, business process engineers, and analysts, but we refer to them, for simplicity sake, as "architects" because their role is identical to the classic role of architect. We call individual documents "drawings," and the entire collection of drawings "blueprints." Design is defined as all aspects of understanding the domain, the problem, and the needs and requirements of the client; designing a solution comprised of strategies, structures, processes, and concepts; preparing drawings and blueprints; and project management of the implementation or operation. Visual definitions, created with the tool using the notation, of the terms "architect," "design," "architecture," and "blueprints" are found in Figures 21A and 21B.

[0007]   The tool and notation provide a visual representation of strategies, structures, concepts, and processes by combining individual elements including shapes, icons, text, adornments, conventions, and color into semantically meaningful objects and relationships. Road signs are an example of a visual language. They, like this tool and notation, communicate powerfully and efficiently by combining shape, color, graphical elements, and text into one visual object.

[0008]   In the tool and notation, an object is created by combining an icon, a shape, and a title

(located at the top of a bracket attached to the shape). These elements represent an object's visual identity and are the equivalent of a noun. Other attributes of an object - adjectives - can be placed in the bracket following the title, or in the form of adornments, color, or text placed on the shape. The adornments can describe and/or limit, and/or represent hierarchy, location, behavior, and responsibilities. In the notation, relationships are depicted as graphical connections between objects and these are equivalent to the verbs "has-owns," "has-uses," "is," "invokes," and "flow."

[0009]   Graphical blueprints are created with the tool and notation. They consist of drawing and specification pages and are used to depict a design and to plan and implement new structures, processes, strategies, and concepts. The blueprints are then used by all involved to validate progress and change. The design and planning process can be circular as new ideas are tried and refined or rejected. Necessary invention takes place and design changes are based on these results. The tool manages these changes and also creates the resulting specifications.

[0010]   In addition to providing enterprise-wide blueprints, the tool and notation will provide the failure-prone field of software development with a modeling language that communicates clearly to both technical and non-technical professionals – to the client and builders, as it were – and will enable complex technologies to be built more predictably, efficiently, and reliably.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011]   FIGURE 1A and 1B - Domain Shapes – The base shapes for the domain objects of the notation.

[0012]   FIGURE 2 - Technology Shapes – The base shapes for the technology objects of the notation.

[0013]   FIGURE 3 - User Interface Shapes – The base shapes for the user interface objects of the notation.

[0014]   FIGURE 4 - Design Notes, Initiative, Issue, Design Points, Rules – The base shapes for the design notes and rules shapes of the notation.

[0015]   FIGURE 5 - Collection, Container, Hierarchy – The adornments to shapes for collection hierarchies, object collections, plural, patterns, and object grouping.

[0016]   FIGURE 6 - Process Shapes and Adornments – The notation for process objects.

[0017]   FIGURE 7 - Initiative Hierarchy Example – The notation for initiative objects.

[0018] FIGURE 8 - Framework, System, Component Example – The notation for framework, system, subsystem, application, package, framework, and component objects.

[0019] FIGURE 9A and 9B - Relationships – The notation for relationships.

[0020] FIGURE 10 - Grouping Shape (Fence) Examples - A sample notation group object containing UI objects and bracket text.

[0021] FIGURE 11 - Sample Tool Embodiment – Screen shot of the tool.

[0022] FIGURE 12A, 12B and 12C Tool Windows – The anchored windows from Figure 11.

[0023] FIGURE 13A, 13B, 13C, 13D, 13E Sample Activity Drawings – Sample activity drawings using the notation.

[0024] FIGURE 14A and 14B - Sample Icons – Sample icons that go inside shapes to create objects.

[0025] FIGURE 15 - Bracket Samples - A sample bracket adornment that goes anywhere along the circumference of a shape. Sample shows placement of component icon.

[0026] FIGURE 16 - Process Model – High level process model for process object specifications.

[0027] FIGURE 17 - Blueprint Drawing Types – Drawing types and labels.

[0028] FIGURE 18 - Release Plan Model – Release plan model for generated project plans.

[0029] FIGURE 19 - Specification Document - Contents of a specification document.

[0030] FIGURE 20 - Emphasis Examples Minor Shading - This example shows six different forms of emphasis for the same attribute.

[0031] FIGURE 21A and 21B - Architect, Design, Architecture, and Blueprint Definitions.

[0032] FIGURE 22 - The Tool Defined in the Notation.

DETAILED DESCRIPTION OF THE INVENTION

[0033] In the following description of the invention, reference is made to the accompanying drawings which form a part hereof, and in which is shown by way of illustration a specific embodiment in which the invention may be practiced. It is to be understood that other embodiments may be utilized and structural changes may be made without departing from the scope of the present invention.

[0034] The present invention is typically implemented using a personal computer. It is

envisioned that attached to the personal computer may be a monitor, keyboard, mouse, data storage devices (such as hard disc drives and/or floppy disk drives and/or CD-ROM drives), and a printer.

[0035] While the general operation of a graphical design tool or CAD tool is the user software environment for this tool and not part of the invention, the resultant blueprint is unique. The novelty is derived from the notation and extensions to a graphical environment that allow the notation to be implemented. This includes icon selection, a bracket device, a fence grouping device, and access and manipulation of object information.

[0036] Shapes dragged onto a drawing canvas and double clicked, or using an inspector window to get a specification dialog, are typical behaviors of such tools, like Microsoft Visio (used for this embodiment of the invention and figures) and is one of several possible bases for this invention. See Figure 11 for an example of the environment.

[0037] The windows shown in Figures 12A, 12B, and 12C (and the programs behind them) are added to the graphical environment to create the disclosed tool. These windows allow for the access and manipulation of objects.

[0038] Those skilled in the art will recognize that the environment described is not intended to limit the present invention. Indeed, those skilled in the art will recognize that other alternative hardware and software environments may be used without departing from the scope of the present invention.

[0039] The user will start by choosing an existing project, create a new project, create a new drawing, or use a wizard to create a new drawing.

[0040] The user will choose a drawing type (listed in Figure 17) and give a title to the page. Figure 13A is a sample activity drawing showing the "create a boarding pass" activity in an airline check-in application.

[0041] The user will then create a drawing by selecting shapes and placing them on the drawing page. Objects can also be created by selecting an area of the specification in the Specification Window, Figure 12A, and selecting ADD.

[0042] The user will then enter specification information in the Object Inspector, Figure 12B, or select an existing specification to create a copy of an object.

[0043] The user will select an icon for the object shape or specify text for inside the shape,

Figure 12C.

[0044]   The user will create relationships between the objects using the notation relationships defined in Figure 9.

[0045]   The user will arrange objects (shapes), brackets, relationships and groups on the page to best communicate a specific portion of the design.

[0046]   The bracket is a tightly-coupled, subordinate container shape that is attached to one of the notation shapes. It attaches to the parent shape with an attachment point that can be attached at predetermined, appropriate points in the vicinity closest to where the user indicates. The bracket contents are divided into segments of varying type, such as a title, lists, tables, graphics, spreadsheets, adornments, embedded output from external products and adornments, and text. Each segment or portion thereof can be viewed or hidden at user control and the bracket automatically expands and contracts to the size of the visible segments. The bracket contents automatically orient according to where the bracket is attached to the parent shape. The bracket automatically moves and stays in position as the parent shape is moved. The whole bracket, and its contents, can be hidden. The bracket is illustrated in Figure 15 which shows examples of various segment content types. Many other figures, such as Figure 1A and Figure 9 show various placements of the bracket.

[0047]   The user can group objects with a fence shape to provide a single identity for the fenced shapes or to provide emphasis or separation for readability. The shape of the fence is infinitely variable by manipulating points on the perimeter of the fence. Figure 10 shows two examples of fence grouping of shapes and of the perimeter having been manipulated.

[0048]   Detailed user interface drawings may be done with a user interface stencil and physical drawings will be drawn using a physical component stencil.

[0049]   When drawing pages are complete, they may be printed and the specification document can be generated and printed.

[0050]   The current embodiment is written in Borland Delphi as a Microsoft Visio 2002 Add-on and is included on the attached CD-R. The Add-on is placed in the Visio Solutions Directory along with the shape stencils and icon database running on Microsoft Windows XP on any Windows-supported PC.

CONCLUSION, RAMIFICATIONS, AND SCOPE OF INVENTION

[0051]   The tool and notation provide a highly flexible, efficient means of producing enterprise-wide maps or blueprints across domains, departments, disciplines, and industries. The use of the tool and notation does not require technical expertise or lengthy training. It will be used by people with differing backgrounds, but the resulting blueprints will be understandable to all who are involved.

[0052]   While the above description of the tool and notation contains many specificities, these should not be construed as limitations on the scope of the invention, but rather as an exemplification of one preferred embodiment. A visual language can be used to communicate anything in a visual, graphical way and could have applications beyond the generation of enterprise blueprints. Similarly, components of the tool and notation, such as the variable bracket and fence mechanisms, could be used in other graphical applications.

[0053]   Thousands of icons and a plethora of shapes, graphical elements, and adornments are present in this tool and notation. Additional styles of icons, shapes, relationships and adornments are also a part of this invention and are used for different user populations. For example, Wall Street will have a more serious visual style than a toy store chain. The style used in the drawing section of this application is just one style. Therefore, changes in shape, size, image, or style comprise alternate embodiments and are within the scope of this specific invention.

[0054]   Accordingly, the scope of the invention should be determined not by the embodiment illustrated, but by the appended claims and their legal equivalents.